

What is claimed is:

1. A method of increasing the secretion of a heterologous protein in a eukaryotic cell comprising inducing an elevated unfolded protein response (UPR).
2. The method of Claim 1 wherein inducing is by increasing the presence of HAC1 protein in said cell.
3. The method of Claim 2 wherein said HAC1 protein is constitutively produced.
4. The method of Claim 2 wherein said increase of HAC1 protein is by a UPR inducing form of a HAC1 recombinant nucleic acid.
5. The method of Claim 2 wherein said HAC1 protein is encoded by a nucleic acid isolated from a cell selected from the group consisting of *Aspergillus*, *Trichoderma*, *Saccharomyces*, *Schizosaccharomyces*, *Kluyveromyces*, *Pichia*, *Hansenula*, *Fusarium*, *Neurospora*, and *Penicillium*.
6. The method of Claim 2 wherein said HAC1 protein is encoded by a nucleic acid isolated from yeast.
7. The method of Claim 6 wherein said yeast is *Saccharomyces cerevisiae*.
8. The method of Claim 2 wherein said HAC1 protein is encoded by a nucleic acid isolated from filamentous fungi.
9. The method of Claim 8 wherein said fungi is from *Trichoderma*.
10. The method of Claim 8 wherein said fungi is *Trichoderma reesei*.

11. The method of Claim 8 wherein said fungi is from *Aspergillus*.
12. The method of Claim 8 wherein said fungi is *Aspergillus nidulans*.
13. The method of Claim 8 wherein said fungi is *Aspergillus niger*.
14. The method of Claim 1 wherein said inducing is by modulating the level of IRE1 protein or PTC2 protein in said cell.
15. The method of Claim 1 wherein said inducing is by increasing the level of IRE1 protein.
16. The method of Claim 15 wherein said IRE1 is an IRE1 variant which has the activity of a constitutively phosphorylated IRE1.
17. The method of Claim 15 wherein said IRE1 protein is encoded by a nucleic acid isolated from a cell selected from the group consisting of *Aspergillus*, *Trichoderma*, *Saccharomyces*, *Schizosaccharomyces*, *Kluyveromyces*, *Pichia*, *Hansenula*, *Fusarium*, *Neurospora*, and *Penicillium*.
18. The method of Claim 15 wherein said IRE1 protein is encoded by a nucleic acid isolated from yeast.
19. The method of Claim 18 wherein said yeast is *Saccharomyces cerevisiae*.
20. The method of Claim 15 wherein said IRE1 is isolated from filamentous fungi.
21. The method of Claim 20 wherein said fungi is from *Trichoderma*.
22. The method of Claim 20 wherein said fungi is *Trichoderma reesei*.

23. The method of Claim 20 wherein said fungi is from *Aspergillus*.
24. The method of Claim 20 wherein said fungi is *Aspergillus nidulans*.
25. The method of Claim 20 wherein said fungi is *Aspergillus niger*.
26. The method of Claim 1 wherein said cell is selected from the group consisting of *Aspergillus*, *Trichoderma*, *Saccharomyces*, *Schizosaccharomyces*, *Kluyveromyces*, *Pichia*, *Hansenula*, *Fusarium*, *Neurospora*, and *Penicillium*.
27. The method of Claim 1 wherein said cell is a yeast cell.
28. The method of Claim 27 wherein said yeast is *Saccharomyces cerevisiae*.
29. The method of Claim 1 wherein said cell is from filamentous fungi.
30. The method of Claim 29 wherein said fungi is from *Trichoderma*.
31. The method of Claim 29 wherein said fungi is *Trichoderma reesei*.
32. The method of Claim 29 wherein said fungi is from *Aspergillus*.
33. The method of Claim 29 wherein said fungi is *Aspergillus nidulans*.
34. The method of Claim 29 wherein said fungi is *Aspergillus niger*.
35. The method of Claim 1 wherein said cell is an insect cell.
36. The method of Claim 1 wherein said cell is a mammalian cell.

37. An isolated nucleic acid encoding a HAC1 protein, wherein said HAC1 protein induces unfolded protein response and has less than 50% similarity to yeast HAC1 protein.

38. An isolated nucleic acid encoding a HAC1 protein, wherein said HAC1 protein induces unfolded protein response and wherein said HAC1 protein comprises a DNA binding region that has greater than 70% similarity to the DNA binding region of filamentous fungi HAC1 protein.

39. The nucleic acid of Claim 38 wherein said filamentous fungi HAC1 protein has an amino acid sequence as shown in Figure 7 or Figure 8 or Figure 28.

40. The nucleic acid of Claim 38 wherein said HAC1 protein has an amino acid sequence having greater than 70% similarity to the sequence of Figure 7 or Figure 8 or Figure 28.

41. The nucleic acid of Claim 38 isolated from *Trichoderma reesei*.

42. The nucleic acid of Claim 38 isolated from *Aspergillus nidulans*.

43. The nucleic acid of Claim 38 isolated from *Aspergillus niger*.

44. The nucleic acid of Claim 38 wherein said HAC1 protein has an amino acid sequence as set forth in Figure 7.

45. The nucleic acid of Claim 38 wherein said HAC1 protein has an amino acid sequence as set forth in Figure 8.

46. The nucleic acid of Claim 38 wherein said HAC1 protein has an amino acid sequence as set forth in Figure 28.

47. The nucleic acid of Claim 38 wherein said nucleic acid comprises a coding nucleic acid sequence as set forth in Figure 7.
48. The nucleic acid of Claim 38 wherein said nucleic acid consists essentially of a coding nucleic acid sequence as set forth in Figure 7.
49. The nucleic acid of Claim 38 wherein said nucleic acid comprises a coding nucleic acid sequence as set forth in Figure 8.
50. The nucleic acid of Claim 38 wherein said nucleic acid consists essentially of a coding nucleic acid sequence as set forth in Figure 8.
51. The nucleic acid of Claim 38 wherein said nucleic acid comprises a coding nucleic acid sequence as set forth in Figure 28.
52. The nucleic acid of Claim 38 wherein said nucleic acid consists essentially of a coding nucleic acid sequence as set forth in Figure 28.
53. A protein encoded by the nucleic acid of Claim 37.
54. A protein having unfolded protein response inducing activity and having greater than 70% similarity to an amino acid sequence of Figure 7 or Figure 8 or Figure 28.
55. A protein having an amino acid sequence as set forth in Figure 7 or Figure 8 or Figure 28.
56. An isolated nucleic acid encoding a PTC2 protein wherein said PTC2 protein modulates unfolded protein response and wherein said PTC2 has at least 70% similarity to an amino acid sequence of Figure 24 or Figure 25.

57. The nucleic acid of Claim 56 isolated from *Trichoderma reesei*.
58. The nucleic acid of Claim 56 isolated from *Aspergillus nidulans*.
59. The nucleic acid of Claim 56 isolated from *Aspergillus niger*.
60. The nucleic acid of Claim 56 wherein said PTC2 protein has an amino acid sequence as set forth in Figure 24.
61. The nucleic acid of Claim 56 wherein said PTC2 protein has an amino acid sequence as set forth in Figure 25.
62. The nucleic acid of Claim 56 wherein said nucleic acid comprises a coding nucleic acid sequence as set forth in Figure 24.
63. The nucleic acid of Claim 56 wherein said nucleic acid consists essentially of a coding nucleic acid sequence as set forth in Figure 24.
64. The nucleic acid of Claim 56 wherein said nucleic acid comprises a coding nucleic acid sequence as set forth in Figure 25.
65. A protein encoded by the nucleic acid of Claim 56.
66. A protein having unfolded protein response modulating activity and having greater than 70% similarity to the amino acid sequence of Figure 24 or Figure 25.
67. A protein having an amino acid sequence as set forth in Figure 24 or Figure 25.

68. A nucleic acid encoding a IRE1 protein having unfolded protein response modulating activity and having at least 60% to an amino acid sequence as shown in Figure 26 or Figure 27.

69. The nucleic acid of Claim 68 wherein said IRE1 protein has an amino acid sequence as shown in Figure 26 or Figure 27.

70. The nucleic acid of Claim 68 wherein said nucleic acid is isolated from *Trichoderma reesei*.

71. The nucleic acid of Claim 68 wherein said nucleic acid is isolated from *Aspergillus nidulans*.

72. The nucleic acid of Claim 68 wherein said nucleic acid is isolated from *Aspergillus niger*.

73. The nucleic acid of Claim 68 wherein said IRE1 protein has an amino acid sequence as set forth in Figure 26.

74. The nucleic acid of Claim 68 wherein said IRE1 protein has an amino acid sequence as set forth in Figure 27.

75. The nucleic acid of Claim 68 wherein said nucleic acid comprises a coding nucleic acid sequence as set forth in Figure 26.

76. The nucleic acid of Claim 68 wherein said nucleic acid consists essentially of a coding nucleic acid sequence as set forth in Figure 26.

77. The nucleic acid of Claim 68 wherein said nucleic acid comprises a coding nucleic acid sequence as set forth in Figure 27.

78. The nucleic acid of Claim 68 wherein said nucleic acid consists essentially of a coding nucleic acid sequence as set forth in Figure 27.

79. A protein encoded by the nucleic acid of Claim 68.

80. A protein having unfolded protein response inducing activity and having greater than 70% similarity to the amino acid sequence of Figure 26 or Figure 27.

81. The protein of Claim 80 wherein said protein has constitutive unfolded protein response inducing activity.

82. A protein having an amino acid sequence as set forth in Figure 26 or Figure 27.

83. A cell containing a heterologous nucleic acid encoding a protein having unfolded protein response modulating activity and a heterologous nucleic acid encoding a protein of interest to be secreted.

84. The cell of Claim 83 wherein said protein having unfolded protein response modulating activity is selected from the proteins selected from the group consisting of HAC1, PTC2 and IRE1.

85. The cell of Claim 83 wherein said protein of interest is selected from the group consisting of lipase, cellulase, endo-glucosidase H, protease, carbohydrase, reductase, oxidase, isomerase, transferase, kinase, phosphatase, alpha-amylase, glucoamylase, lignocellulose hemicellulase, pectinase and ligninase.

86. A protein encoded by the nucleic acid of Claim 38.